

ART. II.—*Preliminary Description of Certain New Marsupials from Central Australia, together with Remarks upon the Occurrence and Identity of Phascologale cristicauda.*

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The following includes a preliminary description of a new genus of the family Dasyuridae and of a new species of the genus *Sminthopsis* from Central Australia, together with remarks upon the identity of *Phascologale cristicauda*, originally described by Krefft under the name of *Chatocercus cristicauda*.

My warmest thanks are due to my friend, Mr. P. M. Byrne, who, under difficulties of collecting and transit which cannot be fully appreciated unless one has personally endeavoured to collect in Central Australia during the hot season, secured the specimens which are now described. Thanks largely to the kindness of Mr. Byrne, I was able, during a visit paid to Central Australia in the recent summer, to secure several important forms of animal life which can only be met with after rain has fallen, and which are very characteristic of the Central fauna. The full description of these, together with those of the marsupials now dealt with, will be published in the volume dealing with the Horn Expedition.

Dasyuroides, gen. nov.

Size small compared to *Dasyurus*; general build comparatively stout. Tail long.

Feet long and strong, not delicate as in *Sminthopsis*. Toes with strong, sharp, curved claws. Palms and soles very hairy, with the median part granulated. Soles with three well-marked pads placed on granulated elevations at the base of the toes.

Hallux entirely absent.

Pouch practically obsolete. Mammæ six.

Dentition $i. \frac{1.2.3.4}{1.2.3} \cdot c. \frac{1}{1} \cdot p.m. \frac{1.0.3.4}{1.0.3.0} \cdot m. \frac{1.2.3.4}{1.2.3.4}$.

General dentition somewhat similar to that of those species of Phascologale in which the lower p^4 is wanting. Canines long and strong. Upper p^4 much smaller than p^1 and especially p^2 . Lower p^4 entirely wanting.

Skull flattened in the frontal region as in Phascologale. The nasal bones very slightly expanded posteriorly. Bullæ very much swollen, the mastoid portion also inflated.

Habits.—Terrestrial; burrowing; insectivorous.

Range.—That of the only species.

Dasyuroides byrnei, sp. nov.

Size similar to that of the larger species of Phascologale. Form stout and strong. Fur close and soft, mainly composed of the under-fur. General colour a grizzled grey, with a faint rufous tinge, especially on the head and back.

Chin, ventral surface, inner sides of limbs and upper surface of hands and feet white.

Tail rufous coloured on rather less than its proximal half. The distal half thickly covered with long black hairs, which form a very well-marked dorsal and ventral crest.

Ears when laid forward reaching nearly to the anterior canthus of the eye.

Palms with five well-marked and faintly striated pads placed on granular elevations.

There is a small tuft of long white whisker-like hairs on the posterior surface of the fore-arm just above the wrist.

Soles with three well-marked pads placed on granular elevations at the base of the toes; the pads with fairly well-marked striations. The median part of the sole is naked and granulated. Each side has a strongly marked close set series of hairs bending over towards the middle line.

Tail fairly thick, but not incrassated.

Mammæ six. Pouch very slightly developed with two low lateral folds.

Skull flattened as in Phascologale but with the nasals very slightly broadened behind as in *Sminthopsis*.

Dentition $i. \frac{1.2.3.4}{1.2.3} . c. \frac{1}{1} . p.m. \frac{1.0.3.4}{1.0.3.0} . m. \frac{1.2.3.4}{1.2.3.4}$

The dentition is somewhat similar to that of such a Phascologale as *Ph. apicalis*. Canines long and strong. That in the upper jaw measuring 3.4 mm. In the immature form the upper p^4 is wanting, in somewhat older specimen it is about the size of p^1 , both of them being smaller than p^3 . Lower p^4 quite wanting. Presumably there is no milk upper p^4 .

DIMENSIONS OF ADULT MALE (in al.).

Head and body	...	...	182 mm.
Tail	..	...	130 „
Ear	...	...	18 „
Hind foot	...	...	38 „

Habitat.—Central Australia. Charlotte Waters. Terrestrial; burrowing; insectivorous. Nocturnal. I have much pleasure in associating with this species the name of Mr. P. M. Byrne.

I have felt considerable hesitation in assigning this species to a new genus, but after a careful examination of the seven specimens (six males and one female) now in my possession, I have come to the conclusion that, as the genera of the family Dasyuridæ stand at present, no other course is possible. It is undoubtedly closely allied to the genera Phascologale and Sminthopsis, and shows at the same time an approach towards Dasyurus. The relationship to the two former are shown in the following points:—

(1) The general form of the body closely resembles that of the larger Phascologales or of a very small Dasyurus, and is very different from that of even the largest Sminthopsis.

(2) The shape of the hind foot is neither that of a Phascologale nor of a Sminthopsis. Judging by the length only (the one dimension given in descriptions) it might naturally be supposed that the foot was similar in proportions to such a form as *Ph. wallacei*. This, however, is far from being the case, as the foot of *Dasyuroides byrnei* is very much narrower than that of *Ph. wallacei*, and the two, when drawings of both of them are compared, are seen to belong to entirely different types of feet. The pads also on the soles are quite unlike those of typical

Phascologales, though this by itself is not perhaps a matter of the greatest importance. On the other hand, the foot is much more stoutly built than in the genus *Sminthopsis*.

In the absence of hallux it is markedly distinct from the foot of either genus.

(3). The pouch is very slightly developed as in *Phascologale*, and the mammae, six in number, and not eight or ten as in *Sminthopsis*.

(4). The skull is flattened in the frontal region as in *Phascologale*, but on the other hand it differs from the latter and agrees with *Sminthopsis* in the character of the nasal bones, which are only very slightly expanded behind. The bullae differ from those of *Sminthopsis* in having the posterior mastoid portion strongly inflated.

(5). The dentition on the contrary is similar to that of certain species of *Phascologale*. The lower p^4 is lost, and the upper p^4 is much smaller than p^3 . The canines also are remarkably strong. In dentition it shows an approach as do also certain *Phascologales* to *Dasyurus*.

It will be seen that as at present defined this species cannot be placed in either of the genera *Sminthopsis* or *Phascologale*. In certain respects it presents characters at present regarded as distinctive of one or the other while it differs markedly from both in the entire absence of hallux.

To have associated it with these forms would have necessitated the merging of the two genera into one another, and the additional widening of the characters so as to include a non-hallucated form. The only other alternative was the creation of new genus, and I therefore adopted this plan, though at the same time it may be pointed out that with an increase in our knowledge of old and new species of these genera, a revision of them will certainly become necessary.

Dasyuroides may be therefore regarded as a genus closely allied both to *Phascologale* and *Sminthopsis*, and as showing also an approach to *Dasyurus*.

Sminthopsis larapinta, sp. nov.

Size small, form light and delicate. Fur very soft and fine, moderately long, composed almost entirely of under-fur with few

longer dark hairs. General colour a mouse grey suffused on the dorsal surface with rufous. The sides, under surface of the body and head, and upper surface of the hands and feet, white. Ears large, when laid forward they reach considerably beyond the eye.

Palms naked, granulated.

Tail much longer than the head and body. Very stout in its proximal part, and strongly incrassated. Very much stouter, longer and more incrassated than in *S. crassicaudata*. Tapering to a long thin end. Strongly scaled at the proximal end with short hairs not hiding the scales. Distally the hairs are more numerous and somewhat longer toward the tip.

Dentition *i.* $\frac{1.2.3.4}{1.2.3}$ *c.* $\frac{1}{1}$ *p.m.* $\frac{1.0.3.4}{1.0.3.4}$ *c.* $\frac{1.2.3.4}{1.2.3.4}$.

Teeth as usual in the genus. Canines small and the pre-molars increasing in size backwards.

DIMENSIONS OF ADULT MALE (in al.).

Head and body	...	...	88 mm.
Tail	...	...	105 "
Length of hind foot	...	...	18.2,,
Ear	...	...	14 "
Width of hind foot	...	...	4 "

Habitat.—Central Australia, Charlotte Waters. Terrestrial.

The characteristic features of this form are (1) the remarkably long, very stout, and strongly-incrassated tail, and (2) the relative length of the foot as compared with *S. crassicaudata* or *murina*.

There is no difficulty in distinguishing it from the former, the specific name of which might with greater appropriateness have been applied to this species. I have some twenty adult specimens of *crassicaudata* from the same district, all agreeing closely with one another in relative dimensions, and markedly distinct from the species in question.

The specific name is adapted from the native name of the Finke River—the Larapinta—in which district it is found.

For the specimen upon which the species is founded I am indebted to Mr. P. M. Byrne.

*Remarks upon the Occurrence and Identity of Phascologale
cristicauda, Krefft.*

The exact determination of this species is a matter of very considerable difficulty. It was originally described by Mr. Krefft from a single specimen under the name of *Chatocercus cristicauda*, and was subsequently placed by Mr. Thomas in the genus *Phascologale*.

Through the kindness of Mr. Byrne I received some six adult and four immature specimens—all of them females—of what was apparently a species of *Phascologale*, though at the same time it showed in the structure of the feet more the character of a *Sminthopsis*, rendering it a matter of some difficulty to which genus, as at present described, it should be referred. On a subsequent visit to Charlotte Waters I obtained, also through the kindness of Mr. Byrne, additional specimens, two of them being males, and was able to see the animal alive. My collection now includes fifteen specimens. The mature ones all agree fairly closely in size with the measurements given by Mr. Krefft from his single specimen of *Ch. cristicauda*. The dentition shows the peculiarity of the latter, viz., absence of the lower p^4 and tubercular nature of the upper p^4 .*

The black crest, typical of Krefft's species, was present, but differed from that described by him in being developed on the ventral as well as on the dorsal surface.

The peculiarity of the dentition, the crested tail and the general measurements of the body led me to refer the animal to Krefft's species. Unfortunately Krefft did not describe the feet, and the soles are distinguished by the presence of three granulated elevations bearing pads, and not by the presence of the five striated pads characteristic of the genus *Phascologale*. In relative dimensions the foot may be regarded as intermediate between the latter genus and *Sminthopsis*.

Mr. J. J. Fletcher very kindly, in response to my request, inspected and sent me a description of the type specimen, and subsequently, through the courtesy of Mr. R. Etheridge, Jun., the Curator of the Sydney Museum, to whose kindness I am much

* Krefft, P.Z.S., 1866, and "Mammals of Australia."

indebted, I had the opportunity of examining the specimen itself. The latter when received by Krefft was in a very bad condition, but there is enough of the original animal and fur remaining to show that both the description and figure* given by Krefft are exceedingly unsatisfactory. The animal is nothing like so rufous as in the drawing, being of a darker mouse colour with a lighter undersurface. The tail is much more swollen proximally than in the figure, shows traces of a rufous coloured proximal part, was evidently incrassated, and had both a dorsal and a ventral crest of hairs. Under the circumstances, viz., an originally badly preserved type specimen, a drawing which could not in certain respects (as to tail and colouration) have correctly represented the animal, and a description which is not only far from complete but is incorrect, there is considerable difficulty in assigning with certainty any newly found specimens to the species in question.

We have however the dimensions given by Mr. Krefft, the corrections in the description of the animal which can be made after inspection of the type and the peculiarity in the dentition noted by Mr. Krefft. A re-description, taking all these points into consideration, would apply so closely to the specimens recently obtained from Central Australia, that I have thought it better to amend the description given by Mr. Krefft, and to refer my specimens to the same species rather than to create a new one for their reception.

The amended description may be given shortly as follows. I shall deal fully with my specimens in the volume dealing with the Horn Expedition.

Phascologale cristicauda, Krefft.

Size large. Form strong. Fur close and soft, and mainly composed of the under-fur.

General body colour, mouse grey, tinged with rufous dorsally. Under surface of head and body cream-white, as are also the upper and inner surfaces of the limbs.

Tail thickly covered on its upper and lateral surfaces with coarse chestnut-coloured hairs; ventrally the hairs are dark

* Krefft, P.Z.S., 1866.

brown. About the middle of its length it is covered with coarse black hairs, which increase in length distally on the upper and under surface until, especially on the upper surface, they form a distinct black crest, a smaller crest being present ventrally.*

The tail is considerably swollen out proximally, and somewhat incrassated.†

Palms with six granulated elevations.

Soles with three granulated elevations, each with a small, unstriated pad, at the base of the toes.

Pouch opening vertically downwards, with moderately developed lateral folds. Mammae six.

Dentition *i.* $\frac{1.2.3.4}{1.2.3}$ *c.* $\frac{1}{1}$ *p.m.* $\frac{1.0.3.4}{1.0.3.0}$ *m.* $\frac{1.2.3.4}{1.2.3.4}$.

Canines long and strong; upper p^4 either absent or tubercular, lower p^4 always absent.

DIMENSIONS.

—	Type Specimen.	Adult ♂ in al.	Adult ♀ in al.
Head and Body - -	121	148	130
Tail - - -	83	89	85
Ear - - -	—	15.5	15.5
Hind Foot - - -	28	26	28

In the skull the frontal region is flattened, and the nasal bones are markedly broadened posteriorly. Bullae much swollen: the posterior mastoid portion inflated.

Habitat.—South and Central Australia. The exact locality of Mr. Krefft's specimen is doubtful. He gives it as "probably Lake Alexandrina," that is, near the mouth of the Murray River. All of mine came from Central Australia. The animal

* This description, though considerably different from that given by Mr. Krefft, will still apply to the type specimen, as he appears to have quite overlooked the small crest on the under surface.

† This also applies to the type specimen.

is terrestrial in habit, burrowing in sandy and stony ground, and is nocturnal and insectivorous.

It will be noticed that the feet are, in regard to the pads, those of a *Sminthopsis* rather than a *Phascologale*. In reality, their dimensions are intermediate between those of the two genera; and as *Phascologale* is by no means so exclusively arboreal in habit as is usually supposed, I am inclined to lay less stress upon the presence of five striated pads on the sole of the foot than is usually done. I may here state that, as Mr. Thomas has pointed out, our knowledge of the forms comprised in the genera *Phascologale* and *Sminthopsis* is far from complete.

Mr. Zietz, of the Adelaide Museum, and myself have now a fair collection of the Australian representatives of those genera, and our work upon them has shown us that a revision of the genera, upon which we are now engaged, has become a matter of necessity.
